Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An irrigation system for disturbing water to soil, the irrigation system comprising:

a sprinkler comprising:

an inlet coupling disposed to receive water from a source of pressurized water;

a head comprising a cover having an outlet aperture, the head further comprising a plurality of flow control features, each of which is movable into fluid communication with the outlet aperture to control distribution of water received through the inlet coupling to the soil through the outlet aperture, wherein the cover comprises a substantially flat plate in which the outlet aperture is formed, wherein the head further comprises a flow control member comprising a plurality of tubular extensions, each of which is disposed to convey water to one of the flow control features, wherein the flow control member is rotatable about the generally vertical axis to align any of the tubular extensions with the outlet aperture; and

a drive mechanism coupled to the cover to induce reversing rotation of the outlet aperture about a generally vertical axis through an angle of rotation, the drive mechanism comprising a reduction gear train that conveys torque from the rotor to the cover with a positive mechanical advantage, wherein the reduction gear train is exposed to the water received through the inlet coupling.

2. (Original) The irrigation system of claim 1, wherein the flow control features are disposed within a chamber defined by the cover.

3. (Original) The irrigation system of claim 2, wherein the cover comprises a substantially tubular shape having an outer wall, wherein the outlet aperture is formed in the outer wall, wherein the head further comprises a flow control member comprising a substantially tubular shape comprising an outer wall in which the flow control features are formed, wherein the flow control member is rotatable about the generally vertical axis.

4. (Original) The irrigation system of claim 3, wherein the head further comprises a plenum chamber within the flow control member, wherein all of the flow control features are simultaneously in fluid communication with the inlet coupling via the plenum chamber.

5. (Cancelled)

6. (Currently Amended) The irrigation system of claim ~~5~~ 1, wherein each of the flow control features comprises a nozzle, wherein the head further comprises a deflector flow control member disposed outside the flow control member, wherein the deflector flow control member comprises an outer wall in which a plurality of deflectors are formed, wherein the deflector flow control member is rotatable about the generally vertical axis to align any of the deflectors with any of the nozzles.

7. (Original) The irrigation system of claim 1, wherein the head further comprises a detent mechanism that urges the flow control features, collectively, to remain in any of a plurality of orientations, wherein in each of the orientations, one of the flow control features is in fluid communication with the outlet aperture.

8. (Original) The irrigation system of claim 1, wherein the plurality of flow control features comprises at least six flow control features comprising a plurality of differently-shaped orifices.

9. (Original) The irrigation system of claim 1, wherein the sprinkler further comprises a body that encases at least a portion of the drive mechanism, wherein the drive mechanism is coupled to first and second levers extending outward with respect to the body, wherein the first and second levers are coupled to first and second arcuate slots, wherein the first and second levers are relatively movable to control the angle of rotation, wherein the head further comprises a dial manually rotatable to move the flow control features into fluid communication with the outlet aperture.

10. (Original) The irrigation system of claim 1, wherein each of the flow control features comprises a nozzle through which the water flows in such a manner that water flow is constricted by the nozzle.

11. (Original) The irrigation system of claim 1, wherein each of the flow control features comprises a deflector extending into the water in such a manner that the deflector does not, by itself, substantially constrict water flow.

12. (Original) The irrigation system of claim 1, further comprising a base unit comprising a garden hose coupling and a sprinkler coupling, wherein the garden hose coupling is designed to be connected to receive water from a standard garden hose and the sprinkler coupling is in fluid communication with the garden hose coupling and is connectable to the inlet coupling of the sprinkler.

13. (Original) The irrigation system of claim 12, further comprising a valve disposed upstream of the base unit and a timer electrically coupled to the valve to control water flow to the sprinkler.

14. (Original) An irrigation system for disturbing water to soil, the irrigation system comprising:

a sprinkler comprising:

a body;

an inlet coupling disposed to conduct water into the body from a source of pressurized water;

a head comprising a cover having an outlet aperture, the head further comprising a plurality of flow control features, each of which is movable into fluid communication with the outlet aperture to control distribution of water received through the inlet coupling to the soil through the outlet aperture, the head comprising a dial axially displaced from the flow control features, wherein the dial is manually rotatable to move the flow control features into fluid communication with the outlet aperture; and

a drive mechanism, at least a portion of which is encased by the body, wherein the drive mechanism is coupled to the body to induce reversing rotation of the outlet aperture about a generally vertical axis through an angle of rotation, wherein the drive mechanism is coupled to first and second levers extending outward with respect to the body, wherein the first and second levers are relatively movable to control the angle of rotation.

15. (Original) The irrigation system of claim 14, wherein the flow control features are disposed within a chamber defined by the cover.

16. (Original) The irrigation system of claim 15, wherein the cover comprises a substantially tubular shape having an outer wall, wherein the outlet aperture is formed in the outer wall, wherein the head further comprises a flow control member comprising a substantially tubular shape comprising an outer wall in which the flow control features are formed, wherein the flow control member is rotatable about the generally vertical axis.

17. (Original) The irrigation system of claim 16, wherein the head further comprises a plenum chamber within the flow control member, wherein all of the flow control features are simultaneously in fluid communication with the inlet coupling via the plenum chamber.

18. (Original) The irrigation system of claim 14, wherein the cover comprises a substantially flat plate in which the outlet aperture is formed, wherein the head further comprises a flow control member comprising a plurality of tubular extensions, each of which is disposed to convey water to one of the flow control features, wherein the flow control member is rotatable about the generally vertical axis to align any of the tubular extensions with the outlet aperture, wherein the dial is fixedly attached to the flow control member.

19. (Original) The irrigation system of claim 18, wherein each of the flow control features comprises a nozzle, wherein the head further comprises a deflector flow control member disposed outside the flow control member, wherein the deflector flow control member comprises an outer wall in which a plurality of deflectors are formed, wherein the deflector flow control member is rotatable about the generally vertical axis to align any of the deflectors with any of the nozzles.

20. (Original) The irrigation system of claim 15, wherein the plurality of flow control features comprises at least six flow control features comprising a plurality of differently-shaped orifices.

21. (Original) The irrigation system of claim 14, wherein each of the flow control features comprises a nozzle through which the water flows in such a manner that water flow is constricted by the nozzle.

22. (Original) The irrigation system of claim 14, wherein each of the flow control features comprises a deflector extending into the water in such a manner that the deflector does not, by itself, substantially constrict water flow.

23. (Original) The irrigation system of claim 14, further comprising a base unit comprising a garden hose coupling and a sprinkler coupling, wherein the garden hose coupling is designed to be connected to receive water from a standard garden hose and the sprinkler coupling is in fluid communication with the garden hose coupling and is connectable to the inlet coupling of the sprinkler.

24. (Original) The irrigation system of claim 23, further comprising a valve disposed upstream of the base unit and a timer electrically coupled to the valve to control water flow to the sprinkler.

25. (Currently Amended) A sprinkler for distributing water to soil, the sprinkler comprising:

an inlet coupling disposed to receive water from a source of pressurized water; and

a head comprising a cover having an outlet aperture, the head further comprising a plurality of nozzles, each of which is movable into fluid communication with the outlet aperture to control distribution of water received through the inlet coupling to the soil through the outlet aperture, wherein the cover comprises a substantially tubular shape having an outer wall, wherein the outlet aperture is formed in the outer wall, wherein the head further comprises a flow control member comprising a substantially tubular shape comprising an outer wall in which the nozzles are formed, wherein the flow control member is rotatable about a generally vertical axis, wherein the head further comprises a dial extending from the flow control member, wherein the dial protrudes from the cover to permit rotation of the flow control member with respect to the cover via manual rotation of the dial;

wherein all of the nozzles are simultaneously in fluid communication with the inlet coupling; and

wherein the nozzles are disposed within a chamber defined by the cover.

Claims 26-27 (Cancelled)

28. (Currently Amended) The sprinkler of claim ~~27~~ 25, wherein the head further comprises a plenum chamber within the flow control member to provide continuous fluid communication between the nozzles and the inlet coupling.

29. (Currently Amended) The sprinkler of claim ~~27~~ 25, wherein the plurality of nozzles comprises at least six nozzles comprising a plurality of differently-shaped orifices.

30. (Original) A sprinkler for distributing water to soil, the sprinkler comprising:

an inlet coupling disposed to receive water from a source of pressurized water;

a head comprising a cover having an outlet aperture, the head further comprising a plurality of flow control features, each of which is movable into fluid communication with the outlet aperture to control distribution of water received through the inlet coupling to the soil through the outlet aperture, the head further comprising a dial manually rotatable to move the flow control features into fluid communication with the outlet aperture; and

a drive mechanism coupled to the cover to induce reversing rotation of the outlet aperture about a generally vertical axis through an angle of rotation;

wherein the dial extends outward with respect to the cover and is displaced from the flow control features toward the inlet coupling.

31. (Original) The sprinkler of claim 30, wherein the cover comprises a substantially flat plate in which the outlet aperture is formed, wherein the head further comprises a flow control member comprising a plurality of tubular extensions, each of which is disposed to convey water to one of the flow control features, wherein the flow control member is rotatable about the generally vertical axis to align any of the tubular extensions with the outlet aperture.

32. (Original) The sprinkler of claim 31, wherein each of the flow control features comprises a nozzle, wherein the head further comprises a deflector flow control member disposed outside the flow control member, wherein the deflector flow control member comprises an outer wall in which a plurality of deflectors are formed, wherein the deflector flow control member is rotatable about the generally vertical axis to align any of the deflectors with any of the nozzles.

33. (Original) The sprinkler of claim 31, wherein each of the flow control features comprises a nozzle, the head further comprising a cap disposed outside the flow control member, the cap comprising a generally frustoconical shape with an outer wall having a plurality of openings, each of which is aligned with one of the nozzles, wherein the nozzles are oriented to spray the water generally perpendicular to the outer wall.

34. (Original) The sprinkler of claim 33, wherein each of the nozzles is disposed substantially flush with the outer wall.

35. (Currently Amended) A sprinkler for distributing water to soil, the sprinkler comprising:

an inlet coupling disposed to receive water from a source of pressurized water;

a head comprising a cover having a substantially flat plate in which an outlet aperture is formed, the head further comprising a plurality of flow control features, each of which is movable into fluid communication with the outlet aperture to control distribution of water received through the inlet coupling to the soil through the outlet aperture, wherein the head further comprises a flow control member comprising a substantially flat plate adjacent to the substantially flat plate of the cover, and a plurality of tubular extensions extending from the substantially flat plate of the flow control member, wherein each of the tubular extensions is disposed to convey water to one of the flow control features, wherein the flow control member is rotatable about the generally vertical axis to align any of the tubular extensions with the outlet aperture; and

a drive mechanism coupled to the cover to induce reversing rotation of the outlet aperture about a generally vertical axis through an angle of rotation.

36. (Cancelled)

37. (Currently Amended) The sprinkler of claim ~~36~~ 35, wherein each of the flow control features comprises a nozzle, wherein the head further comprises a deflector flow control member disposed outside the flow control member, wherein the deflector flow control member comprises an outer wall in which a plurality of deflectors are formed, wherein the deflector flow control member is rotatable about the generally vertical axis to align any of the deflectors with any of the nozzles.

38. (Currently Amended) The sprinkler of claim ~~36~~ 35, wherein each of the flow control features comprises a nozzle, the head further comprising a cap disposed outside the flow control member, the cap comprising a generally frustoconical shape with an outer wall having a plurality of openings, each of which is aligned with one of the nozzles, wherein the nozzles are oriented to spray the water generally perpendicular to the outer wall.

39. (Original) The sprinkler of claim 38, wherein each of the nozzles is disposed substantially flush with the outer wall.

40. (Currently Amended) A method for irrigating soil through the use of a sprinkler comprising an inlet coupling, a head comprising a plurality of flow control features and a cover having an outlet aperture, and a drive mechanism comprising a reduction gear train, the method comprising:

disposing one of the flow control features in fluid communication with the outlet aperture to provide a selected flow control feature;

receiving water from a source of pressurized water through the inlet coupling;

transmitting torque to the cover with a positive mechanical advantage via the gear train to induce oscillating rotation of the outlet aperture about a generally vertical axis, wherein the reduction gear train is exposed to the water received through the inlet coupling; ~~and~~

distributing the water to the soil through the outlet aperture along a spray pattern controlled by the selected flow control feature; and

wherein the cover comprises a substantially flat plate in which the outlet aperture is formed, wherein the head further comprises a flow control member comprising a plurality of tubular extensions, each of which is disposed to convey water to one of the flow control features, wherein disposing one of the flow control features in fluid communication with the outlet aperture comprises rotating the flow control member about the generally vertical axis to align one of the tubular extensions with the outlet aperture.

41. (Original) The method of claim 40, wherein the flow control features are disposed within a chamber defined by the cover, wherein the cover comprises a substantially tubular shape having an outer wall, wherein the outlet aperture is formed in the outer wall, wherein the head further comprises a flow control member comprising a substantially tubular shape comprising an outer wall in which the flow control features are formed, wherein the flow control member is rotatable about the generally vertical axis, wherein the head further comprises a plenum chamber within the flow control member, the method further comprising inducing the water to flow through the plenum chamber to reach all of the flow control features.

42. (Cancelled)

43. (Currently Amended) The method of claim ~~42~~ 40, wherein each of the flow control features comprises a nozzle, wherein the head further comprises a deflector flow control member disposed outside the flow control member, wherein the deflector flow control member comprises an outer wall in which a plurality of deflectors are formed, the method further comprising rotating the deflector flow control member about the generally vertical axis to align any of the deflectors with any of the nozzles.

44. (Currently Amended) The method of claim ~~42~~ 40, wherein the plurality of flow control features comprises at least six flow control features comprising a plurality of differently-shaped orifices, wherein disposing one of the flow control features in fluid communication with the outlet aperture comprises rotating the flow control member with respect to the cover to dispose at least one of the orifices in fluid communication with the outlet aperture.

45. (Original) The method of claim 40, wherein the head further comprises a detent mechanism that urges the flow control features, collectively, to remain in any of a plurality of orientations, wherein in each of the orientations, one of the flow control features is disposed in fluid communication with the outlet aperture, wherein disposing one of the flow control features in fluid communication with the outlet aperture comprises overcoming a resistance provided by the detent mechanism to rotate the flow control features within the cover.

46. (Original) The method of claim 40, wherein the sprinkler further comprises a body that encases at least a portion of the drive mechanism, wherein the drive mechanism is coupled to first and second levers extending outward with respect to the body, the method further comprising moving the first lever with respect to the second lever to establish an angle through which the outlet aperture oscillates.

47. (Original) A method for irrigating soil through the use of a sprinkler comprising a body, an inlet coupling, a head comprising a plurality of flow control features, a cover having an outlet aperture, and a dial, the sprinkler further comprising drive mechanism comprising first and second levers, the method comprising:

relatively positioning the first and second levers to establish an angle of rotation of the cover, wherein the first and second levers extend outward with respect to the body and the body encases at least a portion of the drive mechanism;

manually rotating the dial to dispose one of the flow control features in fluid communication with the outlet aperture to provide a selected flow control feature, wherein the dial is axially offset from the flow control features;

receiving water from a source of pressurized water through the inlet coupling;

directing the water to flow through the drive mechanism to induce oscillating rotation of the outlet aperture about a generally vertical axis through the angle of rotation;

distributing the water to the soil through the outlet aperture along a spray pattern controlled by the selected flow control feature.

48. (Original) The method of claim 47, wherein the flow control features are disposed within a chamber defined by the cover, wherein the cover comprises a substantially tubular shape having an outer wall, wherein the outlet aperture is formed in the outer wall, wherein the head further comprises a flow control member comprising a substantially tubular shape comprising an outer wall in which the flow control features are formed, wherein the flow control member is rotatable about a generally vertical axis, wherein the head further comprises a plenum chamber within the flow control member, the method further comprising inducing the water to flow through the plenum chamber to reach all of the flow control features.

49. (Original) The method of claim 47, wherein the cover comprises a substantially flat plate in which the outlet aperture is formed, wherein the head further comprises a flow control member comprising a plurality of tubular extensions, each of which is disposed to convey water to one of the flow control features, wherein disposing one of the flow control features in fluid communication with the outlet aperture comprises rotating the flow control member about the generally vertical axis to align one of the tubular extensions with the outlet aperture.

50. (Original) The method of claim 49, wherein each of the flow control features comprises a nozzle, wherein the head further comprises a deflector flow control member disposed outside the flow control member, wherein the deflector flow control member comprises an outer wall in which a plurality of deflectors are formed, the method further comprising rotating the deflector flow control member about the generally vertical axis to align any of the deflectors with any of the nozzles.

51. (Original) The method of claim 49, wherein the plurality of flow control features comprises at least six flow control features comprising a plurality of differently-shaped orifices, wherein disposing one of the flow control features in fluid communication with the outlet aperture comprises rotating the flow control member with respect to the cover to dispose at least one of the orifices in fluid communication with the outlet aperture.